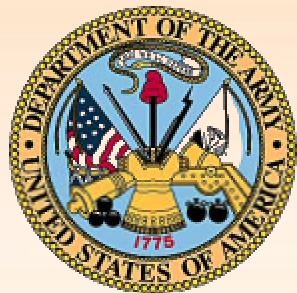




JTF WARNET

FOCUSED ON TRANSITION AND TRANSFORMATION

22 APRIL 2003



What is JTF WARNET?

- **Tactical Connectivity** using JTRS surrogates and existing legacy comms
 - Wideband, wireless, tactical IP based network
- **Interface and Translation** among Service tactical C2 systems for:
 - Direct, horizontal, tactical, secure, joint interoperability
 - Common Tactical Picture (CTP) data
 - Joint integrated Fires, Maneuver, Intel
 - Collaboration
- **System Management**
 - *Monitor Network and Application Performance*
 - *Map overlay of Node location and connectivity*
 - *Manage communication and networking components*
- **CONOPS and TTPs** for new JTF capabilities

Deployable Prototype in FY04

JTF WARNET Warfighter Requirements

COMMON TACTICAL DATA

- Blue PLI
- Red Tracks
- Battlefield Geometry
- Alerts/Reports

COLLABORATION

- Chat/~~(Email)~~/Newsgroups
- File Transfer
- White Boarding
- ~~(VTC)~~

JOINT FIRES

- Full Call For Fire Thread
- Fires Overlays

INTEROPERABILITY

- Approved DoD Joint systems, architecture, and applications (e.g. JTA, DCTS, etc.)
- JTRS surrogates

ENABLING REQUIREMENTS

- Network Management
- CONOPS/TTPs
- Security
- Suitability

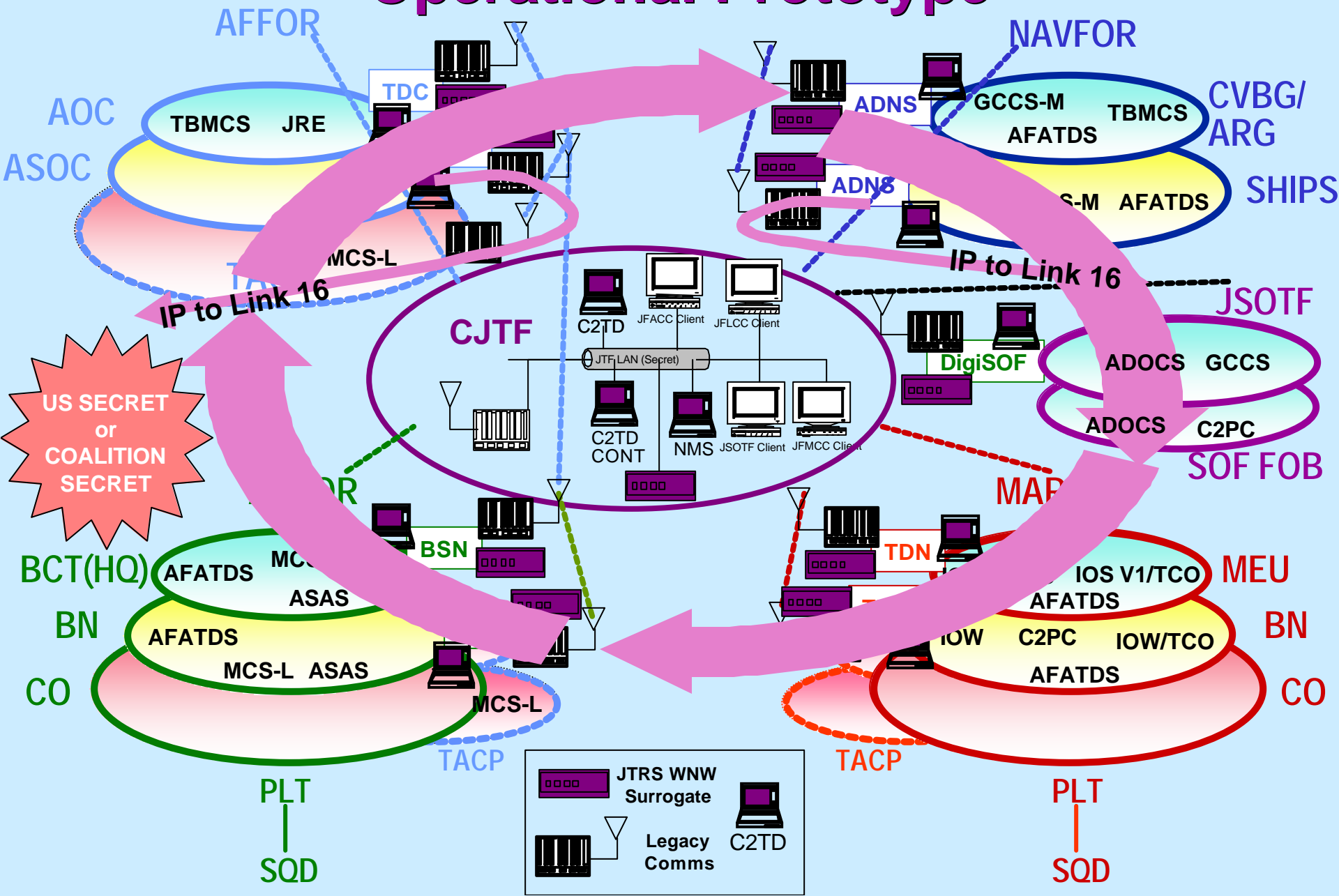
Deployability Threshold (KPPs)

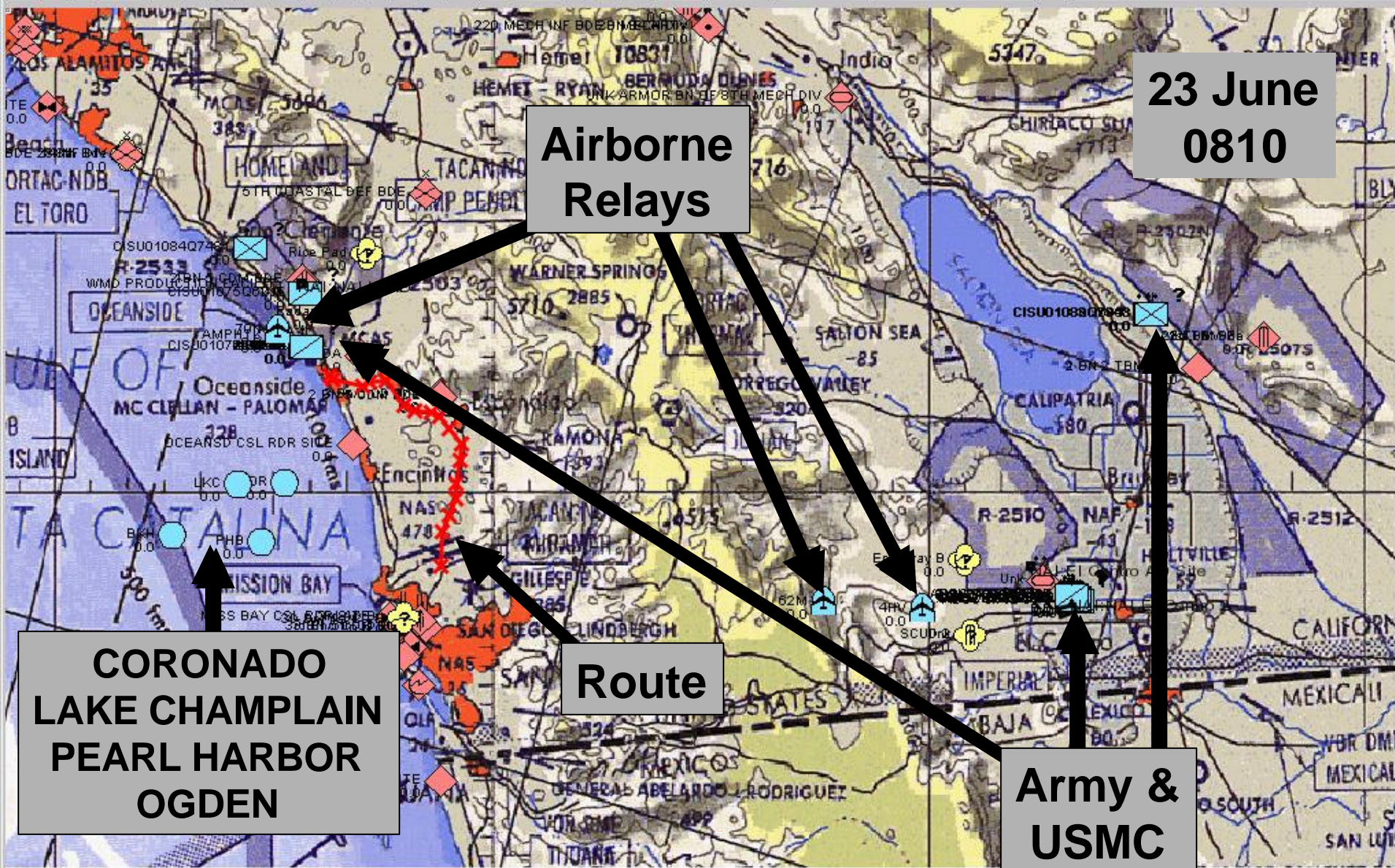
- **Communications Network:** Connect nodes with each service component, operating at least 30 miles apart, 90% hardware availability
- **System Network Management Tools:** Provide accurate system status and ability to prioritize nodes, links, & applications
- **Common Tactical Data:** Red/Blue/"Other" tracks, overlays - Support blue PLI/red & other tracks, providing at least 95 % agreement among components
- **Alerts:** Provide blue-on-blue and WMD warnings, 99% correctly received in < 15 sec
- **Requests and Selected Reports:** At least 90% correctly received in < 15 sec

Deployability Threshold (KPPs)

- **Collaboration:** Support chat, newsgroup, file transfer capabilities from the Defense Collaborative Tool Set, at least 90% of files correctly received in < 8 min
- **Joint Fires:** Share fire support coordination measures and battlefield geometry and pass calls for and fire control traffic between Components, at least 95% of messages correctly received in <15 sec
- **Security Accreditation:** Interim Authority to Operate received
- **Information Assurance/INFOSEC Capabilities:** The prototype's vulnerability is assessed as adequate by an Information Warfare Red Team
- **Suitability:** No significant EMI or network process interference, documentation, TTPs, training packages adequate

JTF WARNET FY04 Operational Prototype





23 June
0810

Airborne
Relays

CORONADO
LAKE CHAMPLAIN
PEARL HARBOR
OGDEN

Route

Army &
USMC



JTFW Operational Prototype Forces / Nodes

CJTF- 5 MTXs

ARMY

3 Bde, 25th ID(L)

- Div Tac (P)
- HQ 3 Bde (S)
- UH-60 Airborne Relay
- Ground Relay node
- 4 Battalion Comm Nodes

**30
MTXs**

AIR FORCE

25 ASOS

- Bde TACP
- C-135 through PDX

SOF

1 SOG

- JSOTF node (P)

**15
MTXs**

**Service
Nodes**

**10
MTXs**

NAVY ESSEX ESG

- ESSEX (P)
- JUNEAU (S)
- BLUE RIDGE (G)
- Two P-3 (AIP), MH-60S, SH-60B Airborne Relay
- FT MCHENRY
- HARPERS FERRY
- JOHN S MCCAIN
- CHANCELLORSVILLE
- GUARDIAN

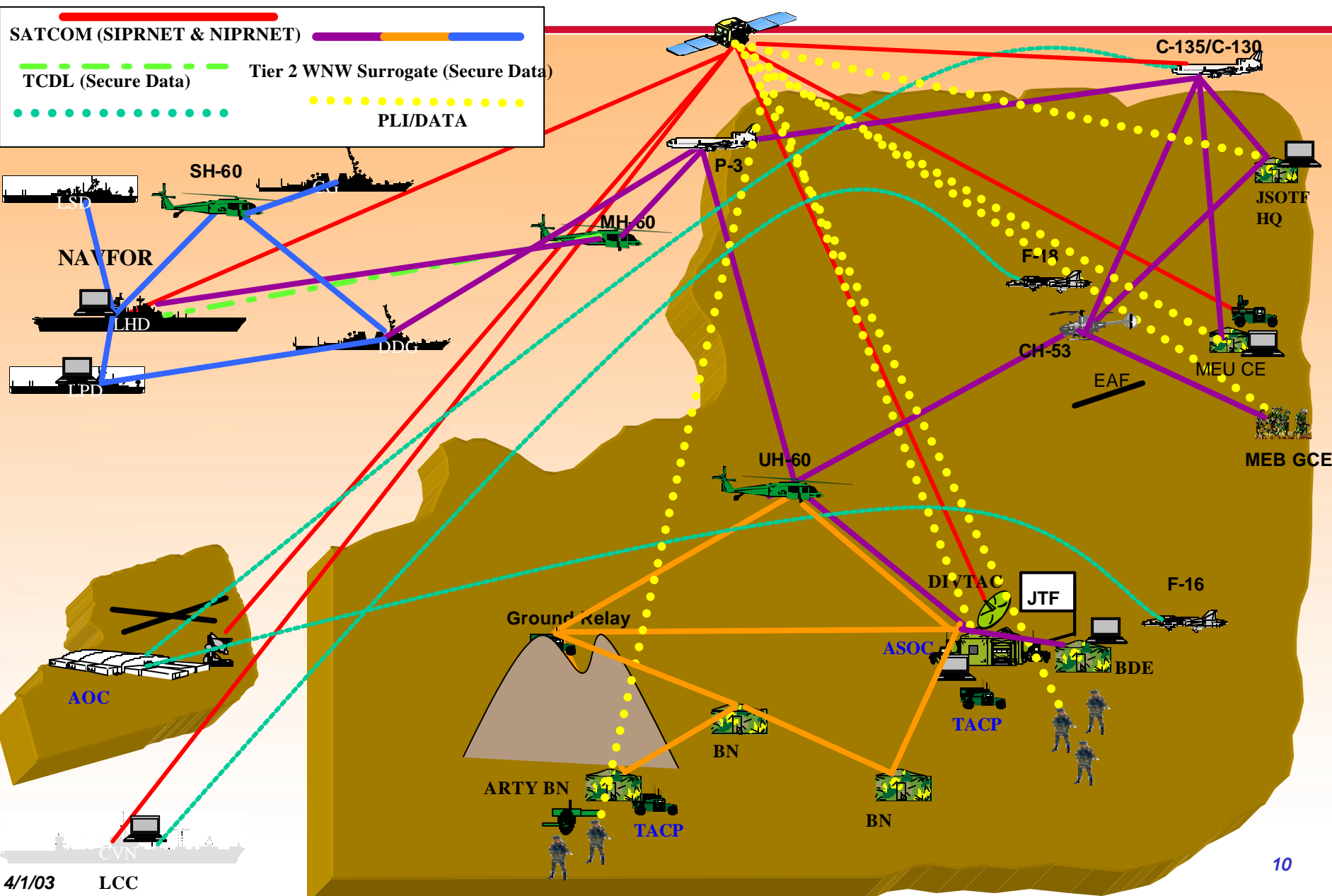
MARINE CORPS

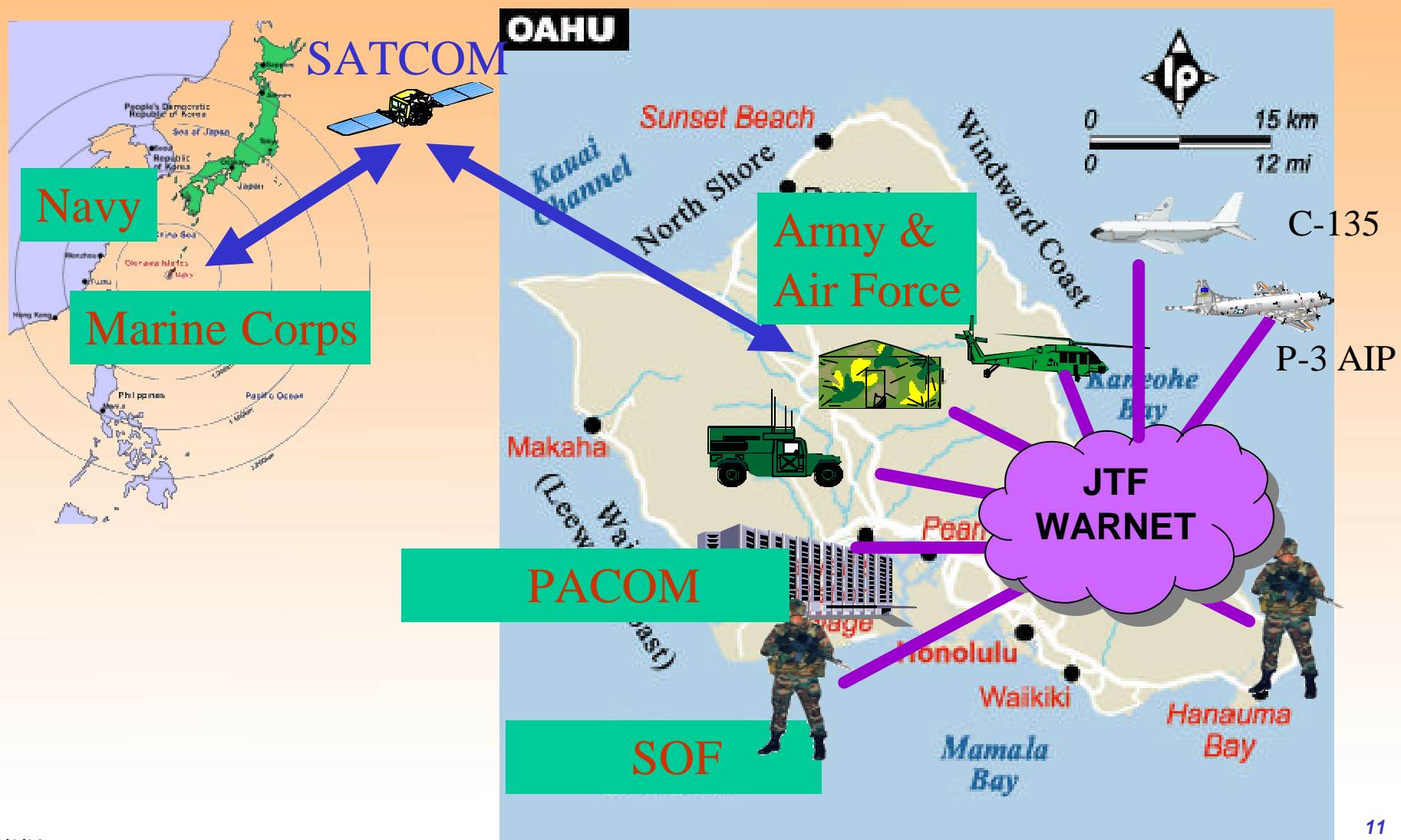
31ST MEU

- MEU HQ (P)
- MEU GCE (S)
- CH-53 & C-130 Relay
- Ground Relay node

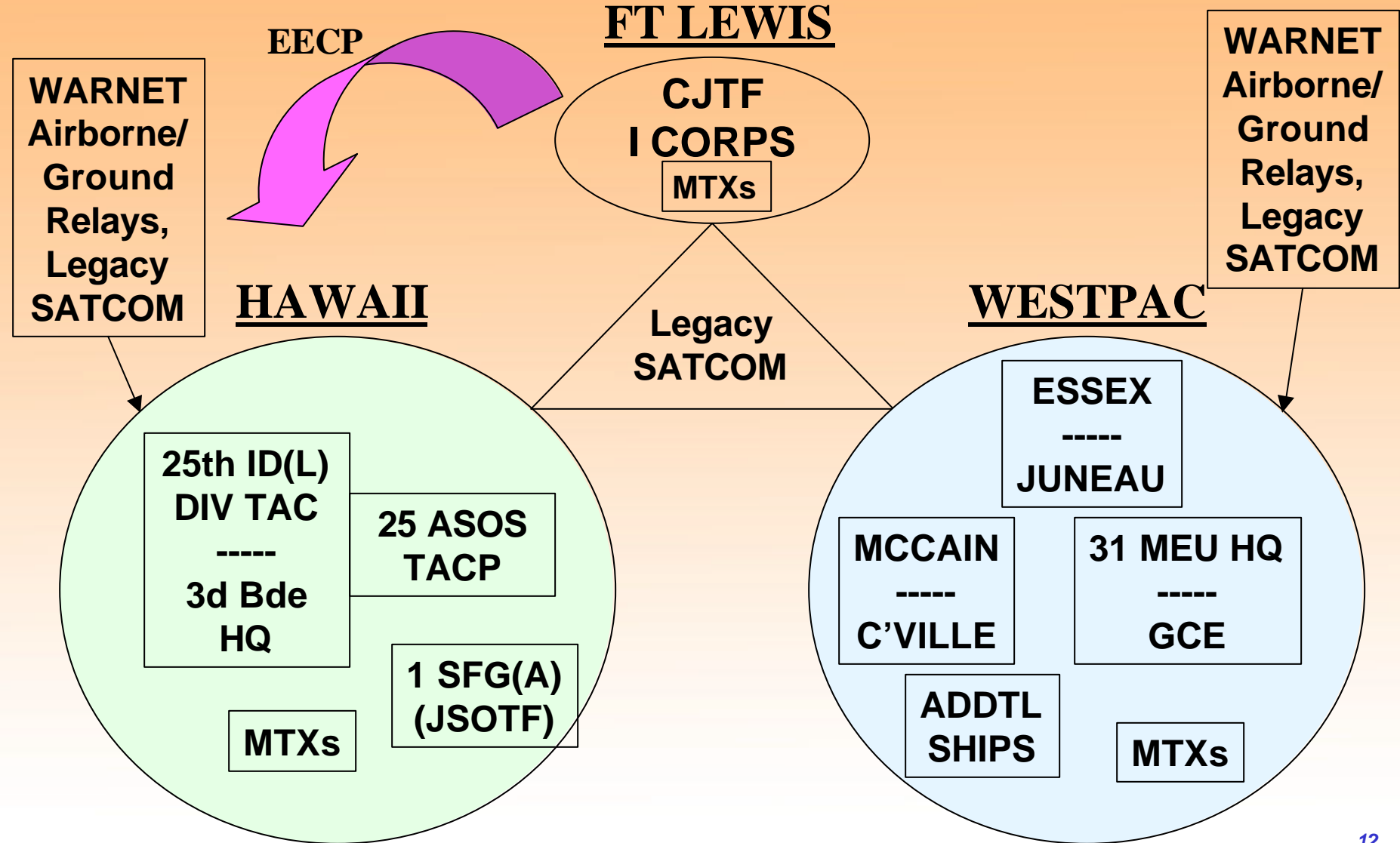
**30
MTXs**

Operational View OV-1



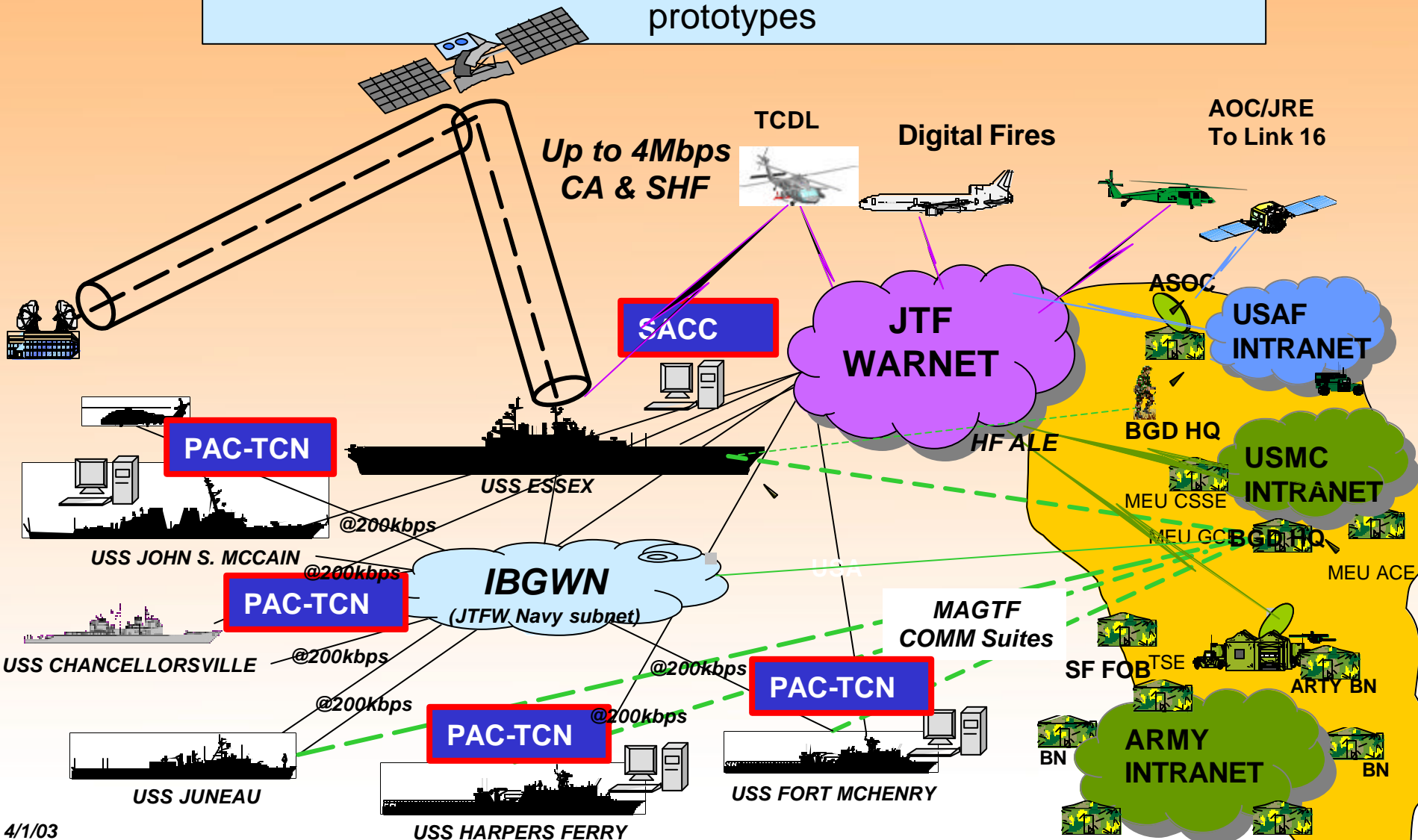


PDX Forces



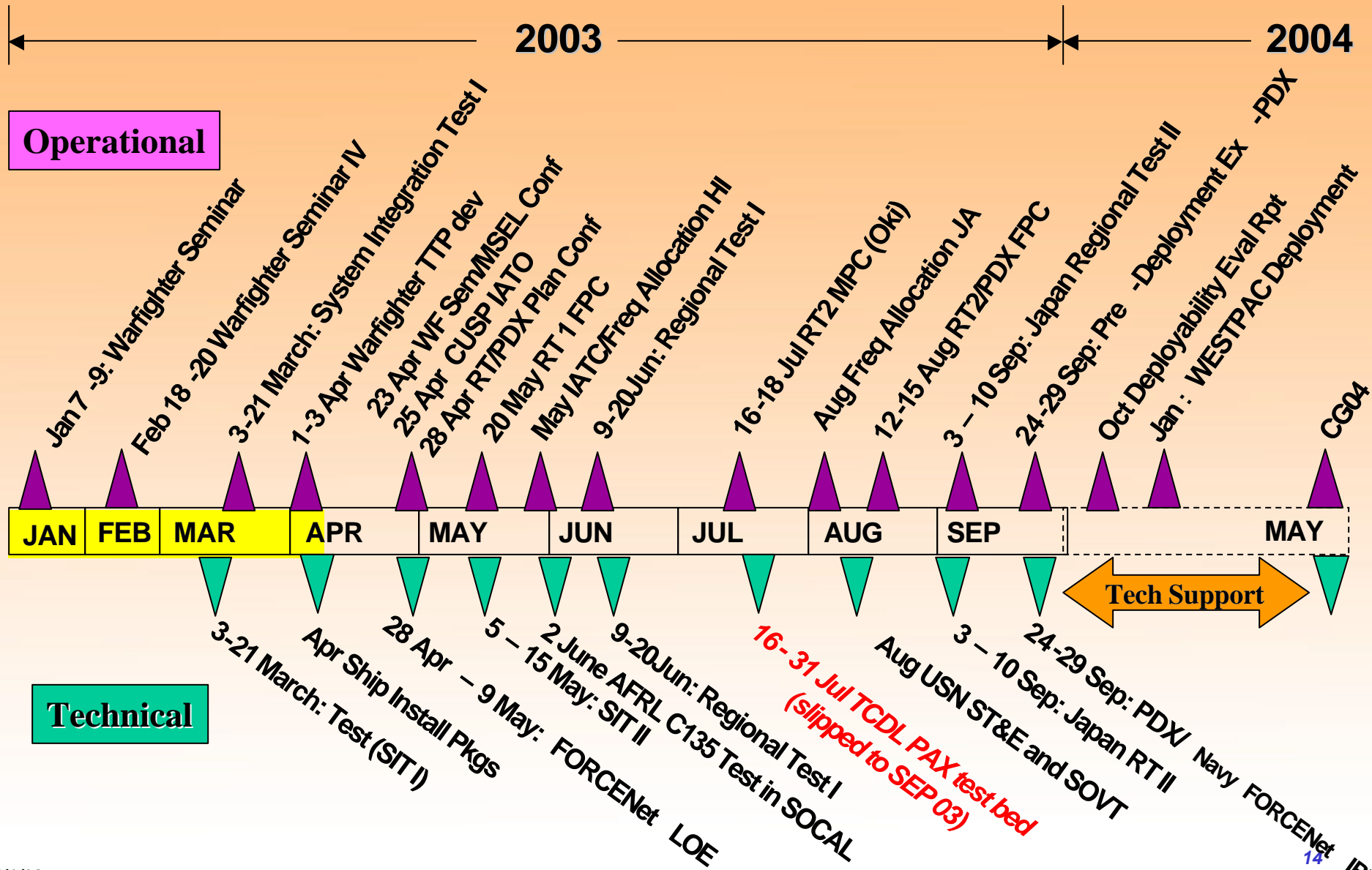
JTF WARNET Pre-Deployment Exercise and FORCENet Integrated Product Demonstration

Integration across POR ship alts & temp alts, new & existing prototypes





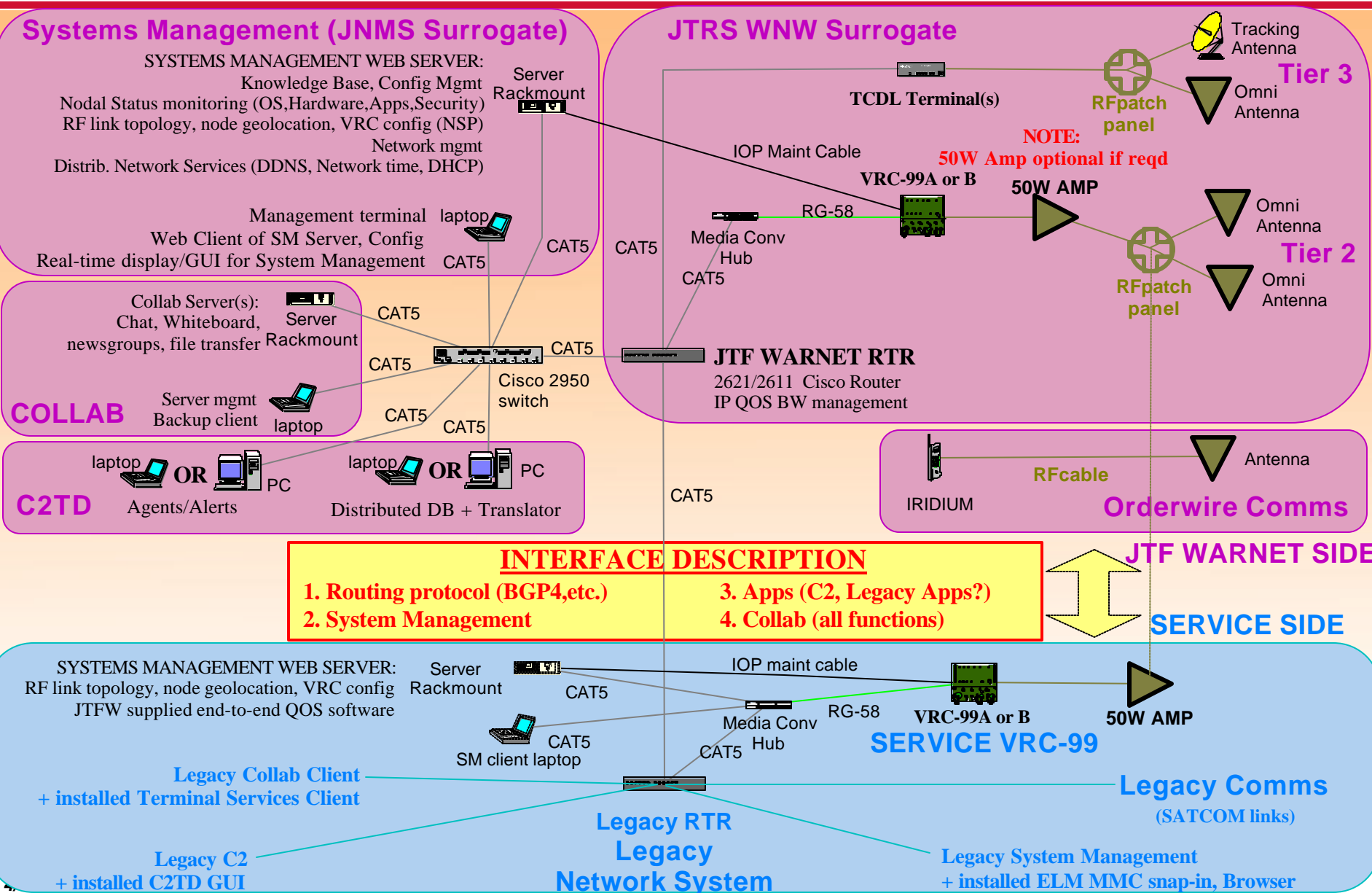
JTF WARNET Major Events



Program Approach

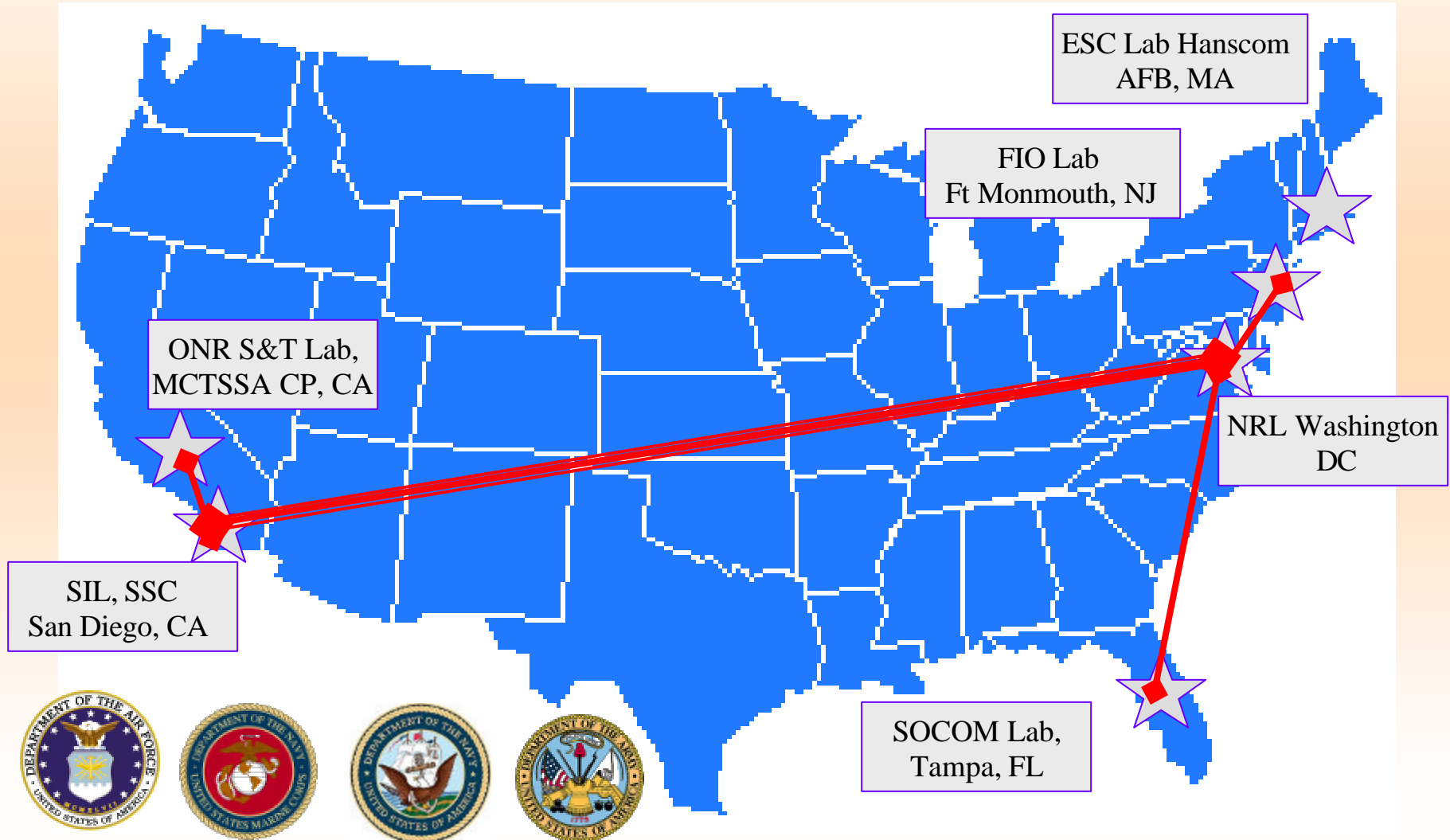
- **Communication and Networking**
 - Uses VRC-99 radios, TCDL, legacy communication, and SATCOM
 - Uses CISCO routers/switches
- **Information Exchange (Common Tactical Picture)**
 - Command and Control Translator Database (C2TD)
 - Existing joint and service C2 application programs
 - System Management Software Tools
 - Collaboration using DCTS
 - Blue Force Tracking using MTX and LOS receiver
- **Operational Forces / Platforms**
 - Uses existing component/service assets
 - No additional manpower required
- **Iterative process between technical and operational teams**
- **Integrated and tested through 2 System Integration Tests and 2 Regional Tests**
- **Deployability tested through Pre-Deployment Exercise**

WARNET Top Level System Architecture



JTF WARNET

Distributed Laboratory Effort



VRC-99 - Network Radio



Specifications

- Direct Sequence Spread Spectrum
- RF Power: 10 watts
- Frequencies "A" Band: 1308-1484 MHz
- Frequencies "B" Band: 1700-2000 MHz
- Interfaces: Ethernet, RS-232, RS-422 with X.25 LAPB
- Data Rate: 625 Kbps to 10 Mbps Burst
- Weight: 25 lbs.
- Size: 3/4 ATR, 7.6"H x 7.5"W x 12.6"D
- COMSEC: Type 1 encryption

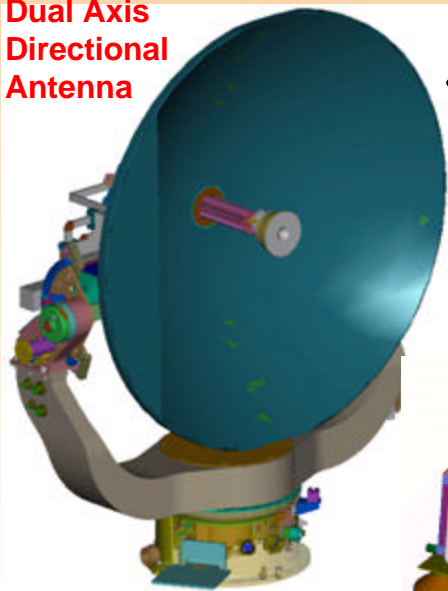
Surrogate for JTRS Wideband Networking Radio

USS ESSEX TCDL

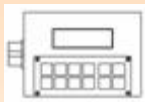
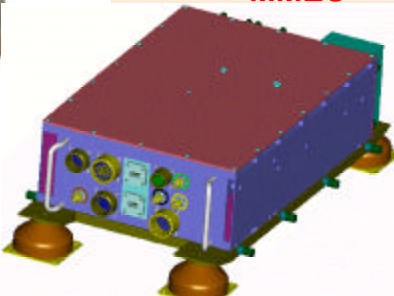


Waveguide

Dual Axis Directional Antenna



MMEU



CVD



Omni Antenna



Control-Monitor
TACC (02-70-3)



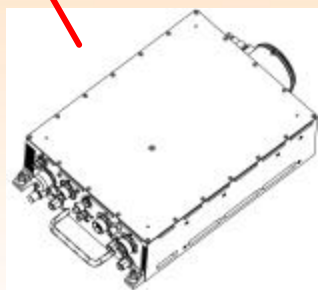
Below Deck
R/T Processor Group
XCVR Room (04-85-091)

Above Deck
Antennas and Mast Mounted Elec Unit

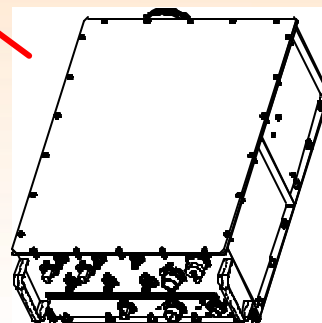
JTF WARNET MH-60S TCDL Ku Band Airborne Terminal Equipment



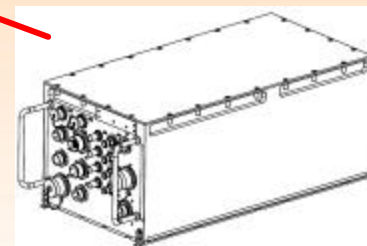
Antenna



**Remote
Amplifier**



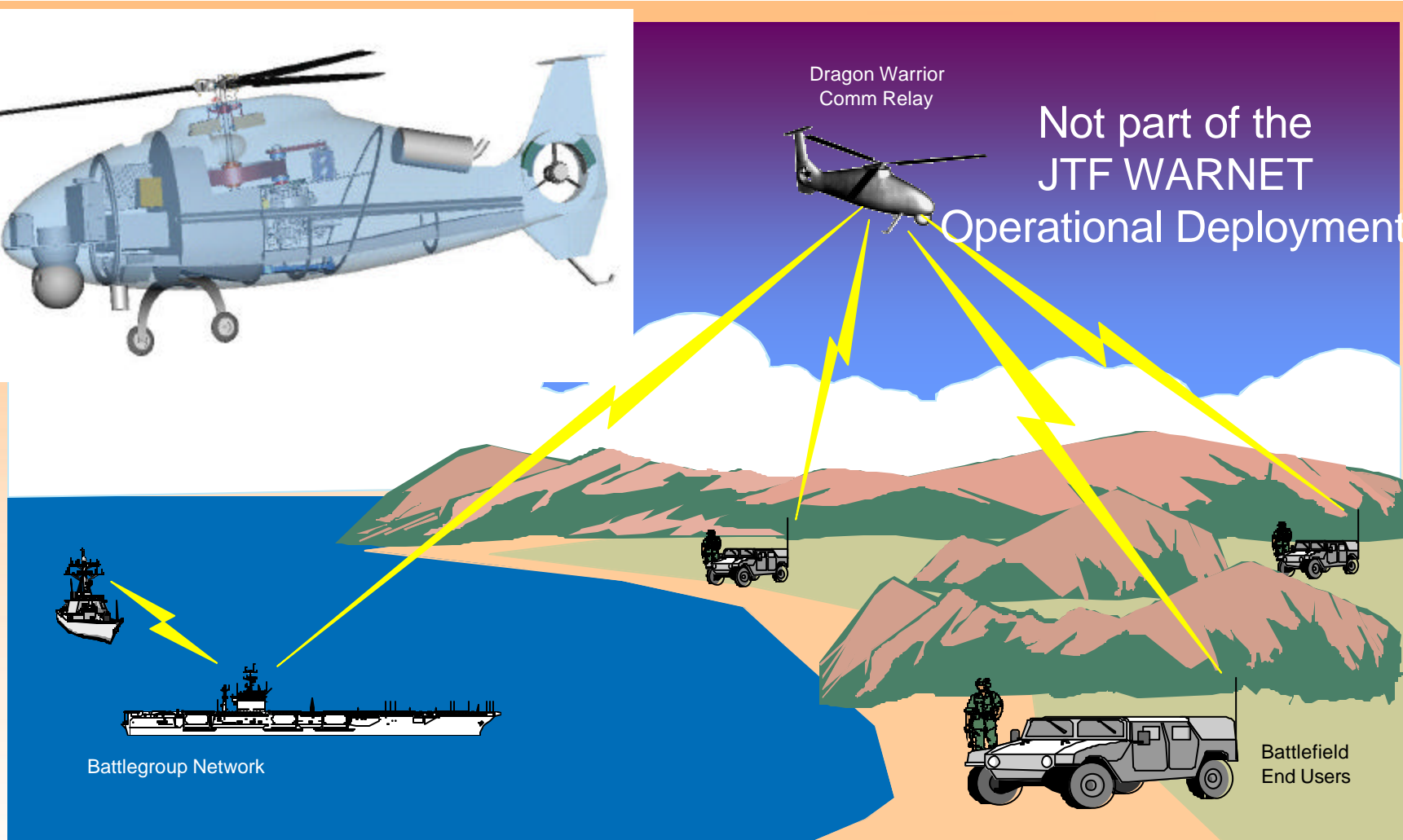
**Receiver /
Transmitter**



Mux / Demux

Marine Corps Contribution

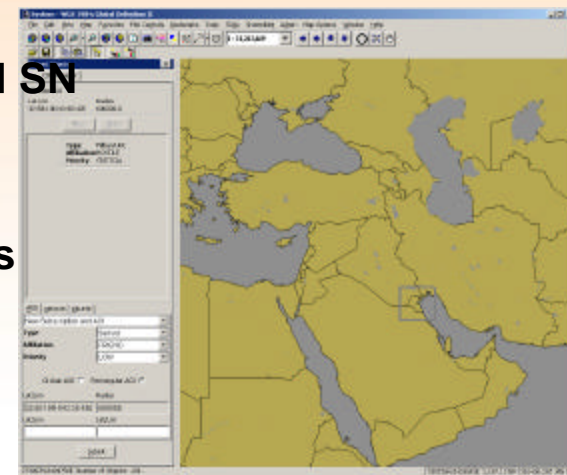
Dragon Warrior Communications Relay



The Dragon Warrior Communications Relay provides a wideband data network for dispersed units ashore with reach-back to the Battlegroup Network.

Command and Control Translator Database (C2TD)

- **JTF Object Model (JTFOM)**
 - Object representation of information to be exchanged in ontological framework
 - Provides higher level of information representation (objects and relationships)
- **Shared Net (SN)**
 - Information framework for dissemination and synchronization
 - Provides reliable communication facilities between peer servers, prioritization
- **Multi-C4I System IMMACCS Translator (MCSIT)**
 - Translation Hub between service systems and JTFOM
 - Provides bi-directional translation and subscription proxy services
- **Shared Net Object Instance Store (SNOIS)**
 - Single software package that integrates the JTFOM and SN
 - Provides persistence and communication facilities
- **Agent Engine (AE)**
 - SNOIS client that provides blue-on-blue and WMD alerts
- **C2TD Graphical User Interface (GUI)**
 - Manages functionality for C2TD components
 - Defines subscriptions and areas of interest



Systems Management ***(Hardware/Software)***

- **Windows 2000 Server Based – Deployed in a distributed and/or centralized topology**
- **Knowledge based assistance for troubleshooting**
- **Manages and monitors:**
 - **From anywhere in network via web browser**
 - **Routers/Switches**
 - **Collaboration and C2TD Servers**
 - **VRC-99 radio network status including displaying network topology and connectivity**
- **Ability to forward select alerts/events to external network**

Defense Collaboration Tools Suite (DCTS)

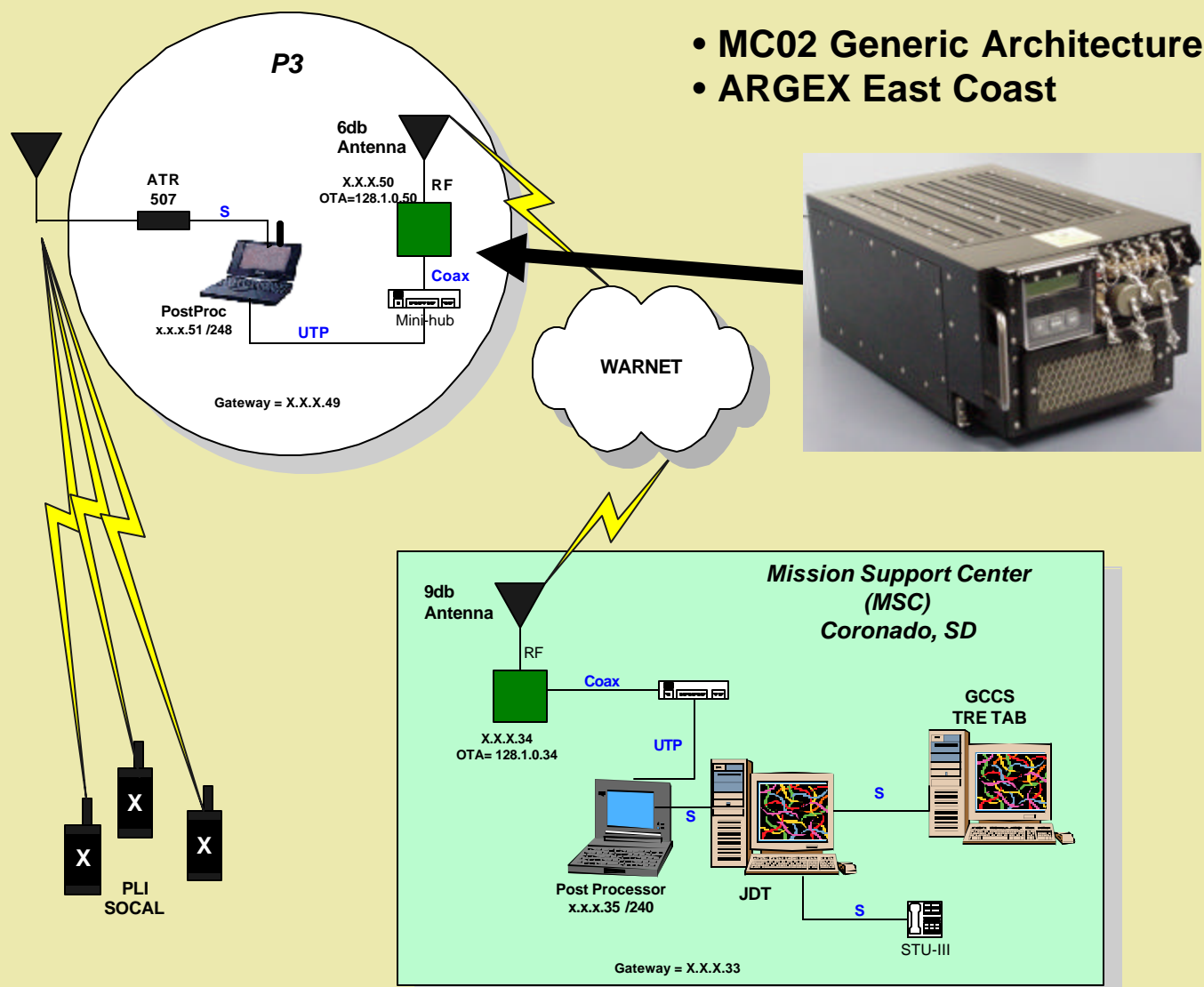
- CUseeMe Conference Server and Client v5 (v6)
- NetMeeting 3.01
- Internet Explorer 6.0
- Outlook 6.0
- WIN2K Server Newsgroup
- WIN2K Server and WIN2K OS's

Multicast Dissemination Protocol (MDP)

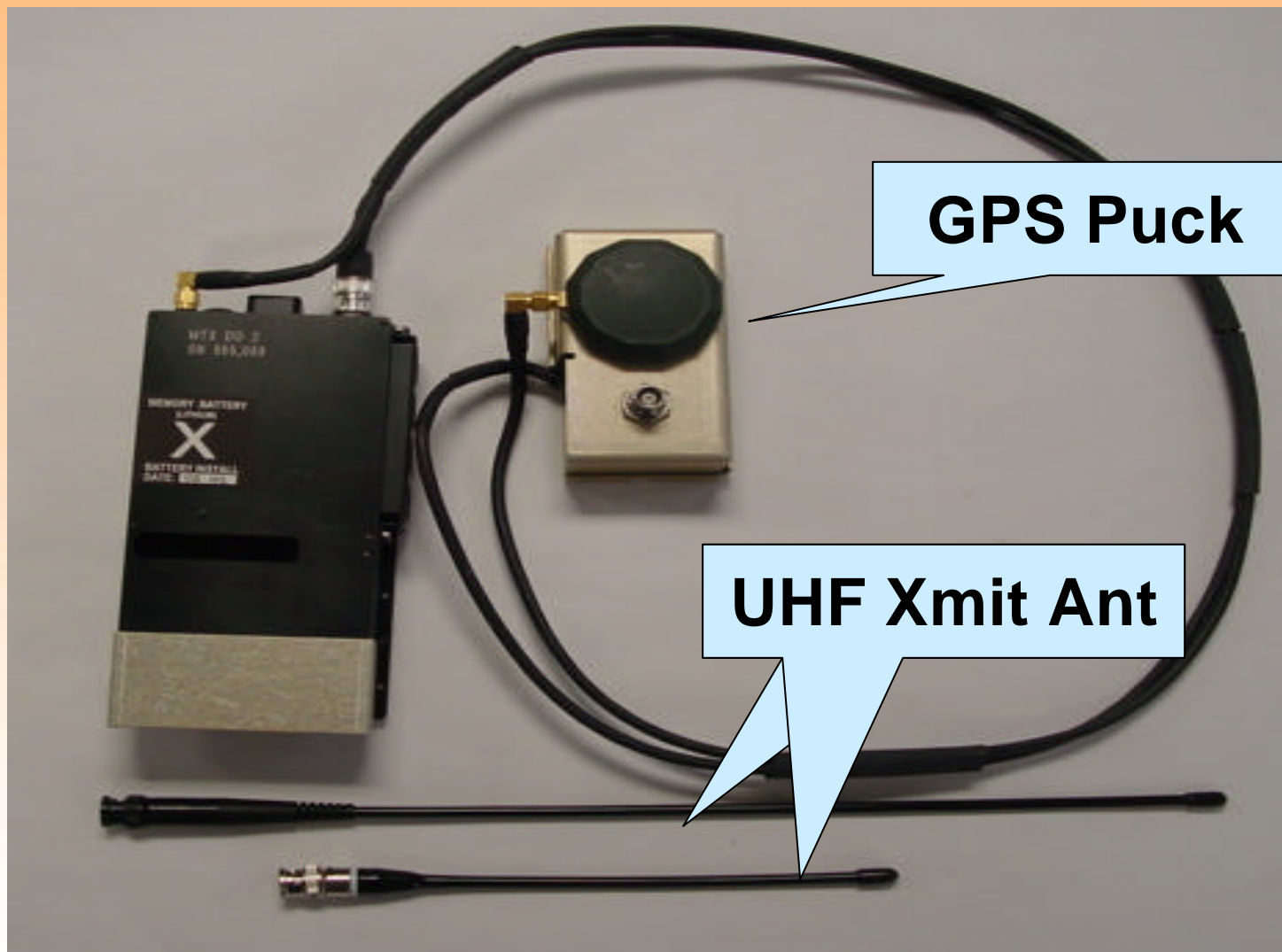
- Efficient Reliable file transfer from one to many
- NetMeeting running over MDP for Whiteboard for robust performance over a multi-hop tactical network

Position Location Information (Blue Force Tracking)

- MC02 Generic Architecture
- ARGEX East Coast



Blue Position Location Information (PLI) Mini-Transmitter Beacon (MTX)



Joint effort with JTRS JPO, AFRL, Lockheed Martin, General Dynamics, and JTF WARNET



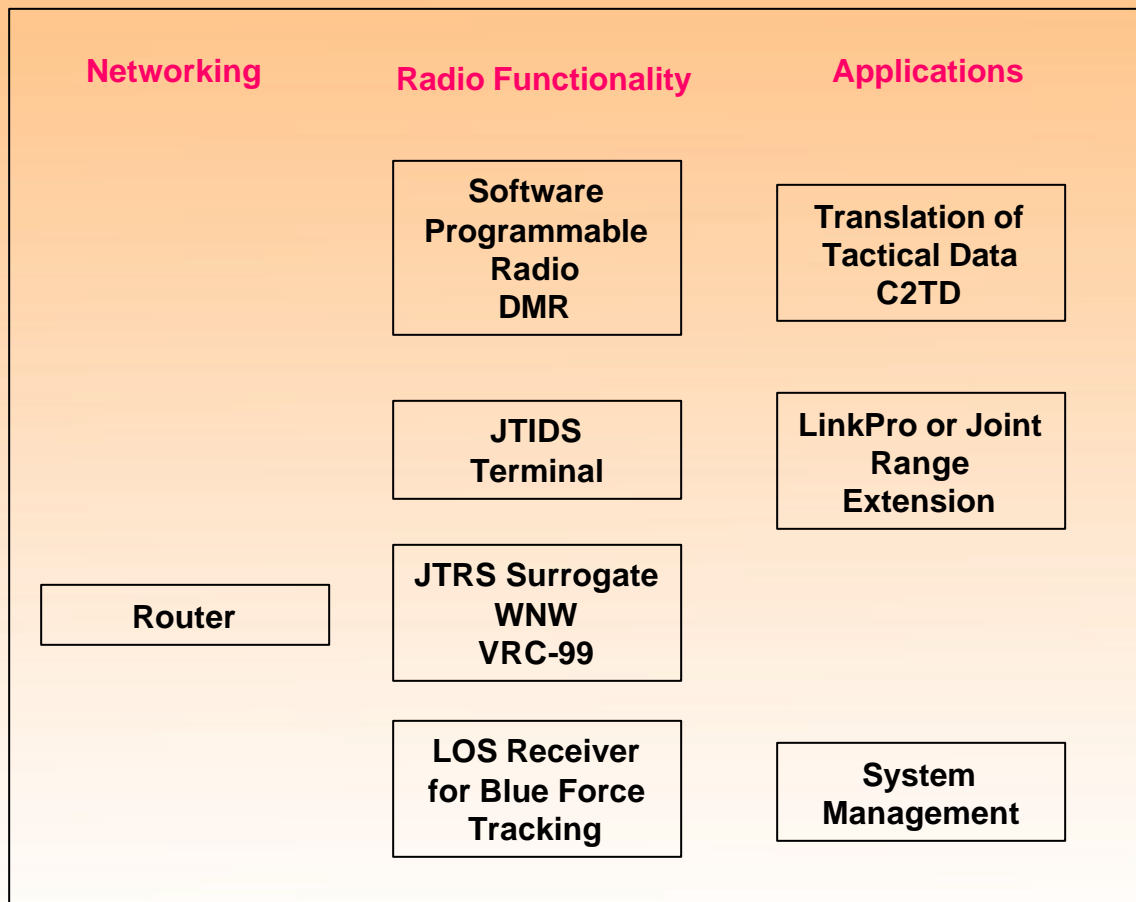
AFRL C4I AIRBORNE TESTBED for participation with JTF WARNET Operational Prototype testing from May 03 to Sep 03

Capabilities:

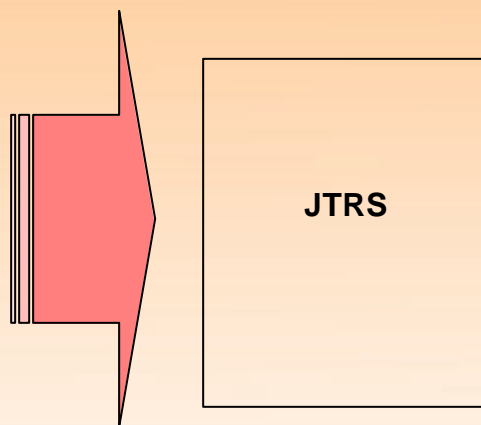
- EHF, SHF, Ka, and Ku SATCOM
- Software Programmable Radio (DMR)
- JTIDS terminal with LinkPRO Interfaced with C2TD
- Surrogate JTRS WNW using VRC-99 for networking relay

From JTF WARNET Operational Prototype to JTRS

JTRS Prototype: C135 or Roll-on-Roll Off Capability on C130



Future JTRS Integrated Solution





4 JTFW Operational Products

Transition to 23 Joint / Service PORs

JTFW Products, FY02-03:

- **Joint Tactical Network Communications Services and Documentation**
- **Command and Control Translator Database Software and System Docs**
 - **Configuration Mgt: Network Centric Enterprise System [DISA Lead]**
- **Network Systems Management Software and System Documentation**
 - **Configuration Mgt: Joint Network Management Systems [Army Lead]**
- **CONOPS and TTP Documentation**

Joint / Service Programs of Record, FY04 and Beyond:

- **Joint: JTRS, JRE, TCDL, COE, JNMS, SJFHQ, TES, NCES**
- **Army: WIN-T, MCS, ISYSCON, ASAS, AFATDS, FBCB2**
- **Marine Corps: TDN, DTC, GCCS (Marine Usage)**
- **Navy: ADNS, GCCS-M, IT-21**
- **Air Force: TBMCS, TDC**
- **SOCOM: TACLAN**



JTFW TP Management Team

- **JTRS JPO, ARMY:** Overall Transition Management Office
- **NCES, DISA:** Configuration Manager, C2TD Software and System Documentation
- **JNMS, Army:** Configuration Manager, Network Systems Management Software and System Documentation
- **Joint and Service POR / Programs:** Integration, Test, Field and Sustainment of JTFW Product(s)

Document Availability

**SIPR Website: Commander United States Pacific
Command Joint Task Force Wide Area Relay Network
Initiative Warfighter Website:**

<http://www2.hq.pacom.smil/j3/j30-e/default.asp?tab=4>

**NIPR Website: Office of Naval Research for
UNCLASSIFIED documents only:**

http://www.onr.navy.mil/sci_tech/jtf_warnet/

Summary

- **On-target to deploy operational prototype, FY04 in WESTPAC**
 - PACOM Forces/Nodes identified and committed
 - 3 joint warfighting conferences conducted
 - System Integration Test I conducted
 - 90% hardware and software components delivered
- **Provided early operational JTFW BFT capability to 31st MEU**
- **Navy FORCENet Integrated Product Demonstration (IPD) leveraging PDX, Sep 03**
- **Transition of JTF WARNET capability to 23 joint/service Programs of Record funded in FY04/05 for \$37M**
- **JTRS JPO, ARMY designated as JTF WARNET Transition Manager**
- **Joint Staff 136 coordination process for Transition Plan nearing completion – “concur with comments” to date**